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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/702,379	11/05/2003	Earl M. Ort	0275Y-000679	8360
27572	7590	09/08/2004	EXAMINER	
HARNESS, DICKEY & PIERCE, P.L.C.			NGUYEN, TRAN N	
P.O. BOX 828			ART UNIT	
BLOOMFIELD HILLS, MI 48303			PAPER NUMBER	
			2834	

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/702,379	Applicant(s) ORTT ET AL.	
	Examiner Tran N. Nguyen	Art Unit 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 04 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) 30-40 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1,3-6,8-15,17-20,22-25 and 27-29 is/are rejected.
- 7) ☐ Claim(s) 2,7,16,21 and 26 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 November 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Drawings

The drawings were received on 8/4/04. These drawings are approved by the Examiner of record.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over **McManus (US 5,268,607)** in view of **Brassard (US 5,861,695)**.

McManus discloses a stator assembly (figs 1-3) comprising:

- a molded resin motor housing;
- a flux ring (38) disposed, wherein the molding material of the molded housing overmolded around the flux ring to secure the flux ring within the housing;
- a plurality of permanent magnets (PMs) (44, 46) disposed around an inner surface of the flux ring;
- wherein:
 - the flux ring (38) includes a seam (48) to provide mounting flexibility for securely molding the flux ring to the housing (12), i.e., to allow the flux ring to be compressed for insertion into the housing during assembly. Fig. 3 shows the seam (48) is in alignment with the PM poles (44, 46), and the seam is filled with the overmolded material (fig 2); therefore, the overmolded material upon hardening preventing the flux ring from compressing;
 - the housing (12) having at least one projection (52, 54) and the flux ring includes at least one hole (50), the projection being received in the hole (fig 2) and arranged to be aligned the PM

Art Unit: 2834

pole in the flux ring; wherein the projections (52, 54) are the keying features being formed in the overmolded material between PM poles thereof .

McManus substantially discloses the claimed invention, except for the limitations of the *material overmolded around the plurality of magnets to secure the magnets to the flux ring.*

Brassard, however, teaches a stator assembly (figs 1-3) having resin molding material overmolded around the plurality of magnets to secure the magnets to the flux ring, and consequently to secure the flux ring to the housing for the purpose of facilitating and reducing manufacturing process and cost as well as enhance the abutment of the PMs to the yoke without any use of welding or mechanical attachment.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the stator assembly by providing a material overmolded around the plurality of magnets to secure the magnets to the flux ring, as taught by Brassard. Doing so would facilitate and reduce manufacturing process and cost, as well as enhance the abutment of the PMs to the yoke without any use of welding or mechanical attachment.

2. **Claim 9** is rejected under 35 U.S.C. 103(a) as being unpatentable over **McManus and Brassard**, as applied in the rejection against the base claim, and further in view of **Tanaka (US 4,015,154)**.

The combination of McManus and Brassard refs substantially discloses the claimed invention, particularly McManus disclose the molding housing having front bearing support (22, fig 3) and an end cap (26) with bearing thereof, except for the added limitations of the following: the stator assembly further including rear bearing support integrally formed of the overmolded material overmolded material, the rear bearing support including a cap having a pocket therein for receiving a rear bearing.

Tanaka, however, teaches an overmolded stator assembly (figs 1, 5-6) wherein the overmolded stator structure having a cap (5) having a pocket therein for receiving a rear bearing (fig 6) for the purpose of providing mechanical support while simplifying the structure and assembling process thereof.

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the stator assembly by configuring the assembly to include rear bearing support

Art Unit: 2834

integrally formed of the overmolded material overmolded material, the rear bearing support including a cap having a pocket therein for receiving a rear bearing. Doing so would provide means to support the bearing while simplifying the structure and assembling process thereof.

3. **Claims 1 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Brennan et al (US 4,873,461)** in view of **Brassard (US 5,861,695)**.

Brennan discloses a power tool having stator assembly (figs 1-3) comprising:

a power tool housing having a motor disposed within the housing and having an output coupled to a transmission (Fig 1); wherein the motor having a stator assembly including: a stator housing comprises front and rear caps (25, 26) located between the stator cylindrical housing wall (24), each of the caps (25, 26) is configured with bearing support for mechanically support the front and rear bearings thereof (fig 2);

a plurality of PMs secured on the stator assembly acting as field magnets thereof.

Brennan substantially discloses the claimed invention, except for the limitations of *a flux ring disposed within a stator housing, a material overmolded around the plurality of magnets to secure the magnets to the flux ring and secure the flux ring to the stator housing.*

Brassard, however, teaches a stator assembly (figs 1-3) having resin molding material overmolded around the plurality of magnets (2) to secure the magnets to the flux ring (1) for the purpose of facilitating and reducing manufacturing process and cost as well as enhance the abutment of the PMs to the yoke without any use of welding or mechanical attachment. In one embodiment, **Brassard's** stator having two poles, each having two PMs. The two poles are separate by a keying slot therebetween.

Art Unit: 2834

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the stator assembly by providing a material overmolded around the plurality of magnets to secure the magnets to the flux ring, as taught by Brassard, and consequently the flux ring to the housing. Doing so would facilitate and reduce manufacturing process and cost, as well as enhance the abutment of the PMs to the yoke without any use of welding or mechanical attachment.

4. **Claim 25** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Brennan and Brassard**, as applied in the base claims, and further in view of **Akiwa (Pat Pub US 2002/0079769 A1)**.

The combination of Brennan and Brassard refs substantially discloses the claimed invention, except for the limitations of at least one projection and at least a hole formed in the flux ring and the housing so that the projection being received in the hole to align the flux ring in the housing, wherein the hole and the projection are disposed about ninety degrees from the seam of the flux ring.

Akiwa, however, teaches a permanent magnet assemble (FIG. 2B), wherein the yoke (4) provided with a positioning projection (22) is aligned with a positioning recess (23) provided in the PM (5) to position the PM (5) and the rotor yoke (4). Those skilled in the art would realize that the Akiwa's important teaching is to provide a matching projection and hole for positioning the two structural components in location alignment.

Thus, by applying the Akiwa's essential teaching, it would have been obvious to one skilled in the art at the time the invention was made to modify the stator assembly by providing either the flux ring or the housing with a projection and the other with a hole, wherein the projection being received in the hole for positioning two structural components together. Doing so would provide means to enable positioning structural components in alignment.

5. **Claim 10 and 28** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Brennan, and Brassard**, as applied in the base claims, and further in view of **Yamano**.

Art Unit: 2834

The combination of Brennan and Brassard refs substantially discloses the claimed invention, Brennan discloses a housing including front and rear bearing holders for supporting the bearings, except for the limitations of the bearing holders, and fan baffle integrally formed of overmolded material.

Yamano, however, teaches a stator assembly (fig 2) that including a fan (4) with baffle (4a); front and rear bearing support (2) for supporting front bearing (2a) and rear bearing (2b) integrally formed of the overmolded material, synthetic resin (27) which is generally read as plastic material. The integrally molded bearing support would provide mechanically support for the bearing and protect the stator with enhance heat radiating and cooling the device, via the fan (4).

Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the stator assembly by configuring the assembly to include a fan with baffle, a front and rear bearing support integrally formed of the overmolded material, synthetic resin, as taught by Yamano. Doing so would provide means for mechanically supporting the bearings thereof, and protecting the stator, as well as means for enhancing heat radiating and cooling thereof.

6. **Claim 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over **Brennan, and Brassard**, as applied in the base claims, and further in view of **Ebner (US 4,935,655)**.

The combination of Brennan and Brassard refs discloses the claimed invention. Particularly, Brassard's stator has two magnetic poles, each has two magnets, wherein the two poles are separate by two keying slots (fig 1-3, unnumbered) therebetween. The above prior-art combination substantially discloses the claimed invention, except for the limitations of the keying slots, wherein at least two of the slots having different widths.

Ebner, however, teaches a FMA having two magnet poles, wherein the two poles are separate by two keying slots therebetween, wherein the two slots having different widths. **Ebner** teaches that the different widths of the two keying slots for the purpose of reducing the detent torque thereof.

Thus, Thus, it would have been obvious to one skilled in the art at the time the invention was made to modify the stator assembly by configuring the assembly to the two poles are

Art Unit: 2834

separate by two keying slots therebetween, wherein the two slots having different widths, as taught by Ebner. Doing so would enable to reduce the detent torque thereof.

Allowable Subject Matter

Claims 2-8, 11-12, 14-19, 21-24, 26-27, and 29 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments filed 8/04/04 have been fully considered, they persuasively overcome the rejections against some of the indicated allowable claimed subject matters of the listed allowed claims.

However, the applicant's arguments have been fully considered but they are not persuasive with respect to the rejections against some of the indicated claims listed in the 35 USC 103 rejections as in previous sections herein.

The applicant argues *that the Examiner takes the position that the molding material of McManus' molded resin motor housing is an overmolding of material around the flux ring that secures the flux ring to the housing. Applicants submit that this is incorrect. McManus' flux ring 38 is not secured to McManus' molded resin motor housing 12 by an overmolding of material. Rather the flux ring 38 is molded in place in molding housing 12. In other words, there is no overmolding of material that secures the flux ring to the housing, there is not separate material overmolded over the flux ring to secure it to the housing.*

In response to this argument, McManus does disclose

a housing (12);

Art Unit: 2834

a flux ring (38) disposed within the housing,

as recited in claimed invention, the McManus' housing is formed of molding material that is being overmolded to embeddedly secure the flux ring within the housing and the molding material also secure the magnets. The Examiner's position is the following:

McManus' molding material (of the housing) is not being overmolded around the magnets. However, Brassard teaches to secure and protect the magnets to their yokes by overmolding a molded material, particularly ferromagnetic powder molded material. Thus, by applying this importance teaching, it would have been obvious to one skilled in the art at the time the invention was made to modify the stator assembly by embodying the molding material to be overmolded around the plurality of magnets to secure the magnets to the flux ring, as taught by Brassard. Doing so would not only enhance the abutment of the PMs to the yoke without any use of welding or mechanical attachment, but also improve the mechanical protection for the magnets. Whether the overmolding material is a *separate material* from the molding material of the McManus' housing or not is irrelevant because the claimed language does not specifically recite such limitations. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

Art Unit: 2834

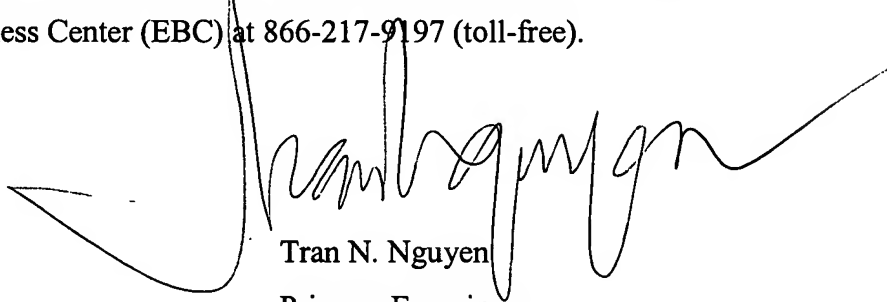
MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tran N. Nguyen whose telephone number is (571) 272-2030. The examiner can normally be reached on M-F 7:00AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Darren Schubert can be reached on (571)-272-2044. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Tran N. Nguyen
Primary Examiner
Art Unit 2834